# Return of the Plankton: The Seasons Underwater in Puget Sound

## Interactive DVD

**A DVD containing a 27-minute video about the seasons underwater in Puget Sound, an archive of photographs identifying over 100 plants and animals from the video that can be printed or accessed for use in a power point presentation or a computer generated slide show. Study aids include a basic marine food web map, sample quiz and season-by-season synopsis.**

Keywords: Puget Sound, underwater video, marine life, food web, water quality, plankton

Two scuba divers lead through the seasons, from spring when the plankton blooms, through summer, fall and winter. Microscopic views show basic elements of the food web, diatoms and zooplankton that feed on them, filter feeders, crustaceans, fish, a seal and birds. Visuals and narrative reveal the importance of Puget Sound as a nursery for marine life.

### SUMMARY BY SEASON

Part One, Spring, plankton and plankton feeders
Introduces plankton and plankton feeders. Opens with a descent under the Agate Passage Bridge in Puget Sound. Two divers swim through a blizzard of plankton carried by the current. The camera shows a variety of plankton feeding animals such as anemones, tubeworms and barnacles. A jellyfish sweeps the water with tentacles. Sea pens filter the water through a colony.

Cast of characters: microscopic diatoms, zooplankton, filter feeding white anemone, tubeworms, barnacles, hydroids on a crab shell, burrowing sea cucumber, jelly fish, sea pen, piddock clam.

Part Two, Summer, connections in the food web
Opens as a blue heron catches a gunnel. The camera descends on a pier at Point White Dock, on the west side of Bainbridge Island. The pier is encrusted with barnacles. A green gunnel has been able to avoid the beak of the heron.

In summer visibility improves as the plankton population thins out. Diatoms are multiplying more slowly because the abundance of nutrients was reduced by earlier generations in the spring. Animal larvae have consumed many of the diatoms and are making a good start at consuming each other. Some of the plankton drift temporarily then settle to the bottom and take on a new life such as barnacles, shrimp, crabs and sea stars. Small forage fish feed on plankton.

Sand dollars are spawning and adding to the flow of plankton. An eelgrass meadow provides a substrate for encrusting life and refuge for small creatures. Crabs and sea stars compete for a salmon carcass. As a climax to summer, a crab seeks refuge under a large boulder only to find the space already occupied by a waiting octopus.

Cast of characters: blue heron, gunnel, tube snout and other forage fish feeding, shrimp, caprellids on Sargasso weed, sea lettuce, eelgrass, sea stars and crab feasting, sand dollars, octopus.

Part Three, Fall, detritus and bottom feeders
Fall season opens with a view of Wing Point and the Seattle skyline beyond. The divers are exploring the kelp beds off Wing Point. The camera descends over a variety of kelp growing on the chain of a buoy. A harbor seal appears in the kelp forest and comes to look the divers over. A dogfish swims by, looking for fish. Camera shows series of possible prey.

The seaweed that was fresh like lettuce in spring has become tattered. It contributes to the rain of detritus, bacteria, etc., falling to the bottom. On the bottom dwell the detritus eaters. Shrimp, the housekeepers of the sea, eat just about anything. Sea cucumbers process the detritus as food, the yoghurt of the sea. A moon snail searches for clams. Sea

slugs devour a sea pen. Moon snails, crabs, sea stars, sand dollars, clams, oysters, barnacles, shrimp and seaweeds all spend part of their lives as plankton.

Other bottom dwellers like flounder and skate lie in wait for prey. Fish come to eat bottom dwellers. Others, like sea mammals, shark and other larger predators come to eat the fish.

Cast of characters: Harbor seal, dog fish shark, sturgeon poacher with decorator crab, school of perch, painted cod, flounder, skate, sand star, hermit crab, moon snail, clam shell with hole drilled through, sea lemon slug, sea slugs eating sea pen, rat fish foraging in the bottoms**.**

Part Four, Winter, accumulation of nutrients/ fish guard eggs
Fish spawn and guard eggs, which will hatch in time to take advantage of the plankton bloom in spring.

Late in the morning the sun is just rising over Seattle as the divers enter Puget Sound from Rockaway Beach on the east side of Bainbridge Island. There will be fewer phytoplankton because of the summer feasting and because the angle of the sun provides less sunlight. The filter feeders will be sustained over winter however, because some of the most numerous plankton are present in the water all year round. Copepods never graduate from a planktonic existence. They, along with the diatoms, are part of the great treasure of the sound, two of the major supports of the food web.

Over the winter nutrients accumulate and are stirred by tides into suspension. Adult fish are building nests, depositing eggs. The eggs will hatch in time to take advantage of the spring plankton bloom. As daylight lengthens in spring, microscopic plants and animals multiply. Their abundance nourishes the development of animals that depend on them for food.

Cast of characters: rockfish, wolf fish, wolf fish eggs, swimming scallop, variety of sculpins with camouflage, squid eggs, ling cod, ling cod eggs with shrimp and sea star, ling cod and other fry, plankton and sea spider